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Characteristics of and the Trade Conflicts in the International Rice Market

— A Case Against the Free Trade Postulate —

Hiroshi TSUJII

1. Introduction

The proponents of the agricultural and rice trade liberalization bases themselves on the theory of comparative cost or of the benefits of free trade postulating that free trade maximizes the welfare of the people of all the nations by bringing about economically the most efficient system. The agricultural trade negotiations at the Uruguay Round have been strongly conditioned by this theory. But there are many major limitations to this theory regarding the basic assumptions to the market. Most of these assumptions do not hold in the real world economy, and especially in the case of Asian rice market. The demand of the United States to liberalize Japanese, Korean and the Asian rice markets bases itself on this theory. But as will be made clear later, the demand bases itself more on different reasons. This paper intends to describe these limitations based on the analysis of the peculiar characteristics of the world rice market and rice policies of Asian and Western high income countries such as the United States, and to show that the rice self-sufficiency policy is the critical element for the new rule in the international rice trade negotiation and for the equitable and stable rural development of Asian countries.

2. Special Characteristics of the World Rice Market

Concentration of Rice Production and Consumption in Asia and Self-Sufficiency

Rice production and consumption are strongly concentrated in Asia in comparison with other major cereals such as wheat and maize. Fig 1 shows that about 90% of the world production and consumption of rice is concentrated in Asia while production and consumption of wheat and maize are globally distributed. The main reason for the concentration of rice production in Asia is probably extremely larger amount of May to October rainfall there relative to other areas on the globe.

Another important characteristic in the world rice market is the rice self-sufficiency in Asia, i. e. the rice produced in Asia is first (and mostly) consumed by the Asians as Fig

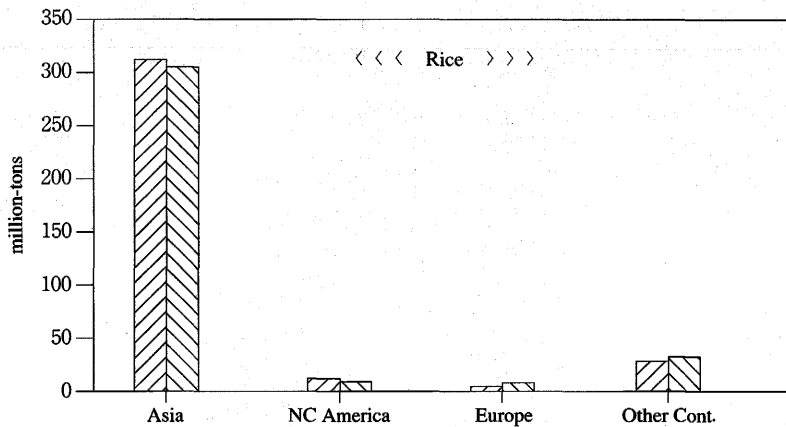


Fig 1-1 Distribution of Rice Production and Consumption by Continent ('89-'91)

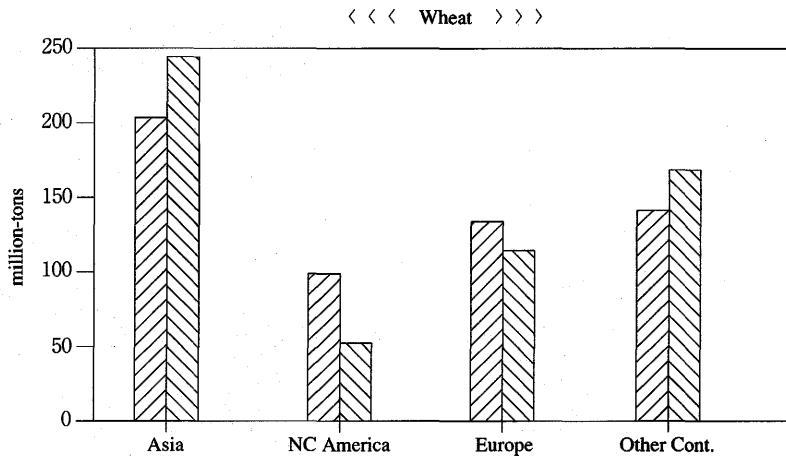


Fig 1-2 '89/'91 Distribution of Wheat Production and Consumption by Continent

1-1 shows. As will be explained later, this characteristic holds not only at the level of Asian continent, but also at each level of Asian farm, village and country.

This property of self-sufficiency does not hold in the case of wheat and maize. As Fig 1-2 and 1-3 show, these two globally important cereals are produced much more than necessary in high income continents, i. e. North and Central America and Europe, and the surpluses have been exported from these continents to low income agricultural continents such as Asia, Africa and South America. Important point to make is that these surpluses are produced by high agricultural protection in America and Europe, and thus they must be exported with heavy export subsidies, resulting in unfair depression of cereal prices and farm income of low income countries as will be expressed later.

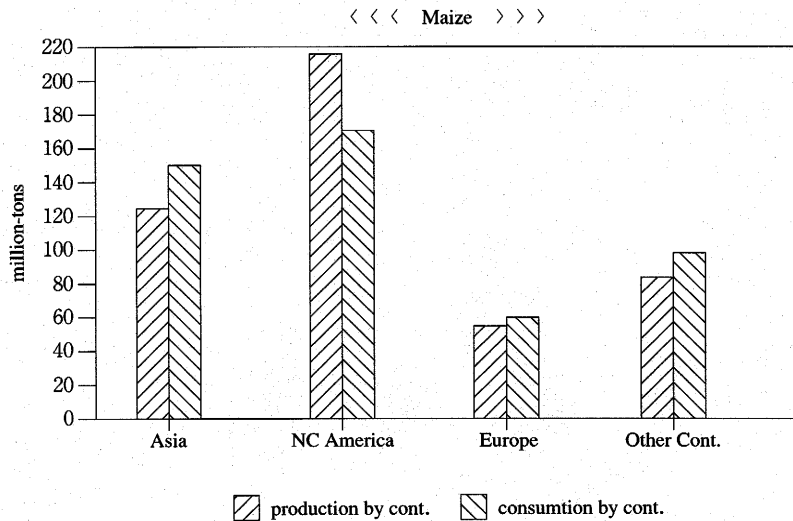
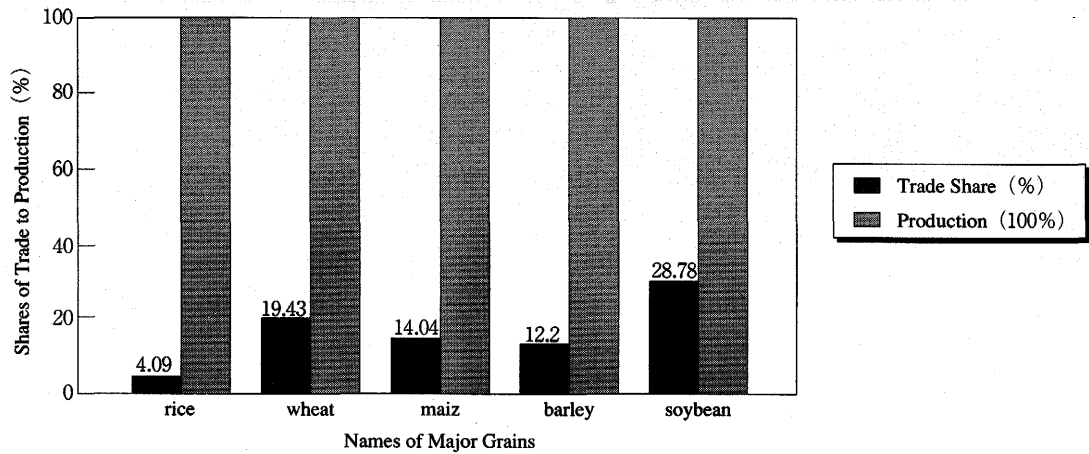


Fig 1-3 '89/'91 Distribution of Maize Production and Consumption by Continent

Thin and Unstable International Rice Trade Market

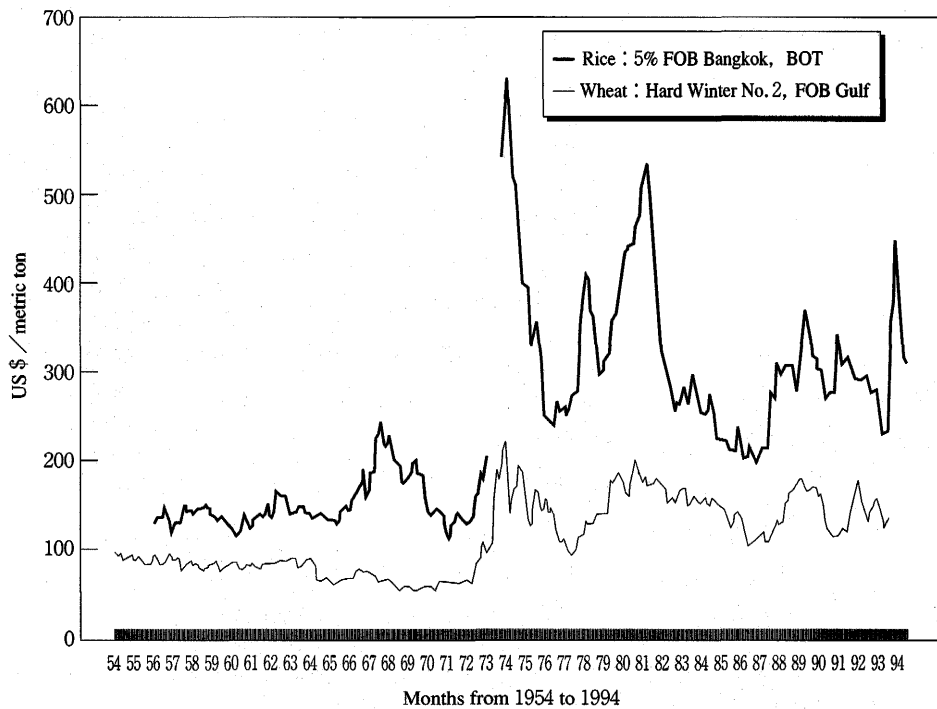
The international rice trade market is very thin. In other words, while 12 - 29 percent of the world's output of wheat, coarse grains and soybean are exported, the percentage for rice has been only 3 - 4 percent as Fig 2 shows. This is because more than 90 percent of the world rice production and consumption of rice are concentrated in Asia, and most Asian countries, in view of the importance of rice as the staple food, necessary goods and wage goods, have tried hard to reach self-sufficiency in rice and many had succeeded it and then maintained it in order to assure stable domestic rice supply by many policy measures. Consequently there has been no strong mechanism in the world whereby international rice transactions can grow endogenously¹⁾.

The world rice trade price has been extraordinarily more unstable after the World War II compared with the wheat (another major grain in the world) price as shown in Fig 3. The failures of monsoon (in 1965, 1966, 1973 and 1987) and East Asian cool weather (in 1980 and 1993) of almost every seven years caused severe Asia-wide droughts and East Asian cold damages, and these droughts and cold damages are reflected by peaks of the international price of rice in Fig 3. Why world rice trade market is so unstable? Firstly, because it is very thin as described just above. Secondly, because of the importance of rice to Asian people the Asian countries have separated domestic and international rice markets by trade policy interventions, and they have tried hard to stabilize domestic rice price using the very thin international rice trade market as their source of rice imports when their



Data : FAO. Trade Yearbook & Production Yearbook, 1987

Fig 2 Very Thin World Rice Trade Market



Data : Thai Bord of Trade and USDA

Fig 3 Extremely Unstable World Rice Trade Market
Comparing with Wheat Trade Market

domestic rice production decreases, and as the destination of their rice export when their rice are in bumper crop. Consequently, the more domestic rice price stabilized, the more the international rice price destabilized.

The world rice trade market is in a state of oligopoly as the export by the six major rice exporting countries (Thailand, the U. S., Vietnam, Myanmar, Pakistan and China) have dominated about 80% of the world total rice trade since late 19th century, and oligopolistic behaviors of the major rice exporters must have made the international rice trade price stabilized. However the greater instability of the rice price than the wheat trade price, the trade market of which is considered more competitive than the rice international trade market indicates severe instability of international rice trade market.

Self-Sufficiency as the Important Market Principle and Policy Goal in Asia

As mentioned above, self-sufficiency is the basic market and policy principle not only in Asian continent but also in Asian rice countries, provinces, villages and farms. Japanese farmers as well as Thai and other Asian farmers produce their rice for themselves and their relatives to eat. Thai farmers in the Northeastern Region have tried to provide their increasing family members with rice by expanding their paddy fields into the forest, migrating to new branch villages for establishing new paddy fields or increasing slowly the application of expensive chemical fertilizers to their degrading sandy paddy fields. In my investigation of rice policies of Asian rice importing countries during the post World War II years the attainment of rice self-sufficiency and maintaining it after reaching it was constantly found to be the important national policy objective. Fitting a trend line to the net rice imports of major importing countries with some adjustment dummies for drought and politically abnormal years for India and Indonesia for the period of 1965 and 1992, I found a line that can be called the trend of rice self-sufficiency attainment as shown in Fig 4. Asian rice exporting countries first provide their nation with rice, then the rest is exported.

Many American rice growers told me in my field surveys that they do not eat the rice they produce and they do not know the taste of it. They produce their rice not for them to eat but to sell. I judge from my investigation of American rice policy that the United States produce her rice for the inherent purpose of increasing her rice export. There is a sharp difference in the principle of rice demand and supply between Asia and the United States.

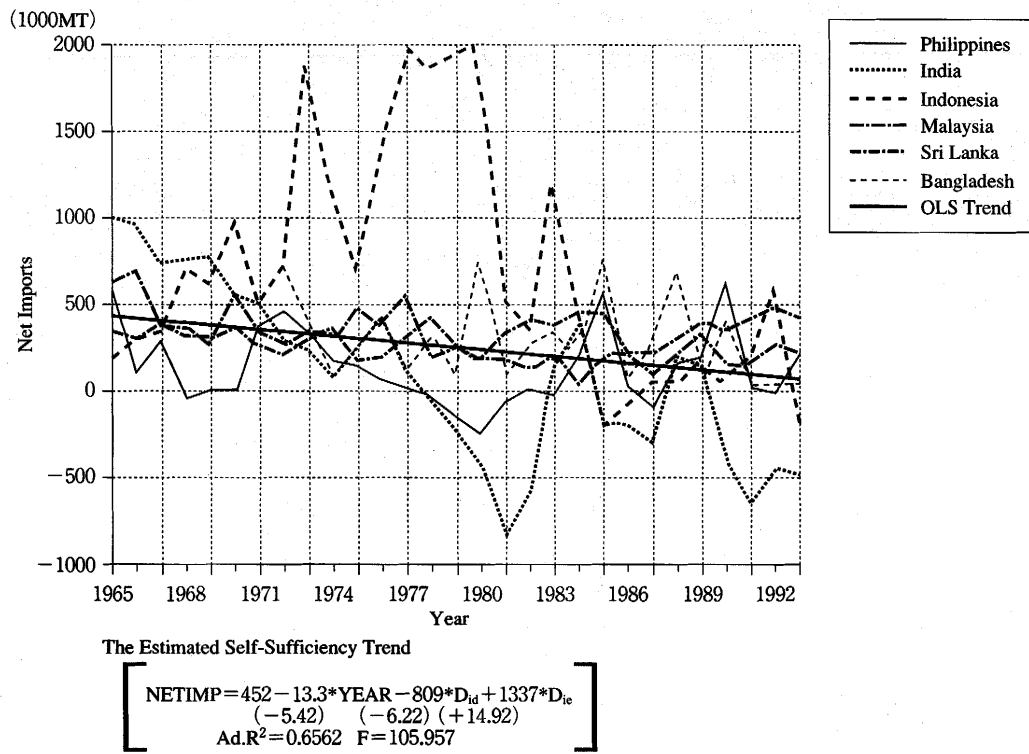


Fig 4 Net National Rice Import Quantities and the OLS Trend of Rice Self-Sufficiency Attainment

The Important National Policy Objective of Domestic Rice Price and Supply Stabilization

Since rice is the staple food, the necessity, the wage goods and the political goods for the people of the Asian countries, the most Asian countries have set stabilization of domestic rice price and supply as one of the most important policy goals. The international rice trade market is very thin, unstable and unreliable as described above, Asian countries cannot depend on it as the major source of their rice supply in order to achieve the stabilization objective. Instead, they have separated their domestic rice markets from the international rice trade market by border measures and have tried to reach and maintain rice self-sufficiency in order to attain the final goal of the stabilization.

If domestic rice supply becomes uncertain and/or domestic rice price soars in Asian countries, panic of the people and political disorder result. Examples are skyrocketing of the domestic rice price when Sukaruno regime fell in the middle of the sixties and the South Vietnamese government fell in 1974. The author personally experienced that rice crisis with disappearance of rice from the shelves of retail shops in Bangkok in 1973 was

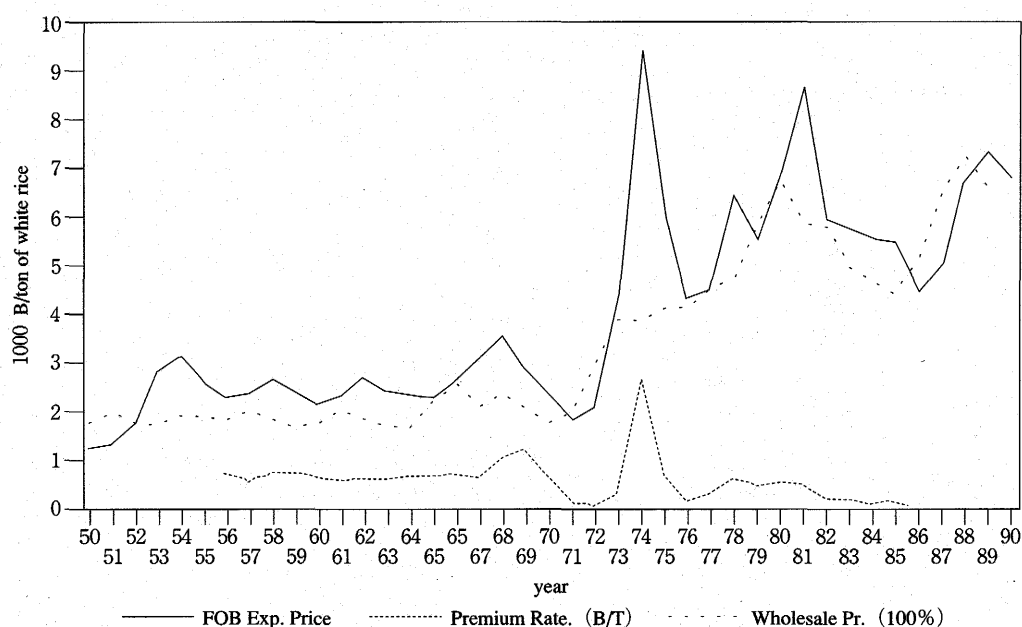


Fig 5 Stabilization Effect of the Rice Premium Policy

followed by riots and a coup. Severe cold damage in Japan in 1993 led to severe shortage of japonica rice and rice panic in early 1994. Severer cold damage and following rice crisis took place in Korea in 1981.

Thailand, one of the largest rice exporting and surplus countries in the world, had tried very hard to stabilize her domestic rice price against the extremely volatile international rice price utilizing rice export tax (so called rice premium) policy. Fig 5 indicates that when Thai rice export price soared, the Thai government increased unit export premium (bahts/ton) in order to stabilize the domestic wholesale price of rice and achieved that objective from late sixties to 1982.

A comparison of simple averages of coefficient of variations between six long run (1950 - 1990) annual time series of export prices and eight wholesale rice prices shows in Table 1 that the coefficient for the export prices is 0.480 while it for wholesale prices is 0.383.

The Instability, Necessity and Self-Sufficiency Cycle

In the Asian rice market there is a cyclical mechanism that make thin trade market and self-sufficiency policy to enforce each other. Since the international rice trade market is thin, unstable and unreliable, and rice is the staple food, the necessity and the political goods in Asia where 90% of the world total is produced, Asian countries cannot depend on

Table 1 Comparison of Coefficient of Variations of Rice Export and Wholesale Prices in US\$
(Mostly for the period of 1950 to 1990)

Rice Export Prices	FOB Bangkok				China, PR	Pakistan			Simple
	Private Trade			G-G Trade	35%	Basmati			Average
	5% Broken	100% grade B*	Brokens, A1 Super	White Rice 35%	G-G Trade	Private Trade			
	0.45	0.511	0.44	0.53	0.47	0.48			0.480
Wholesale Prices of Rice	Bangladesh Midium Milled Rice	India Mixed Coarse Milled Rice	Pakistan Kangni Milled Rice	Malaysia White No.1, Kedah and Super 10% A2 Milled Rice	Indonesia Bulu Milled Rice and Saigon Bandung Milled Rice	Philippines First-Class Milled Rice and Ordinary	Sri Lanka Local Milled Rice	Thailand* 100% grade B	Simple Average
	0.47	0.36	0.27	0.47	0.38	0.29	0.32	0.505	0.383

Data Source: IRRI *World Rice Statistics*, 1990.

*For this category the period (1952-82) is used when the domestic rice price stabilization policy by the rice premium had been conducted.

the international rice trade market as the major source of their rice supply and resort to the self-sufficiency policy. In tern, the international rice market cannot have a major endogenous mechanism to increase its volume of trade, and stays thin.

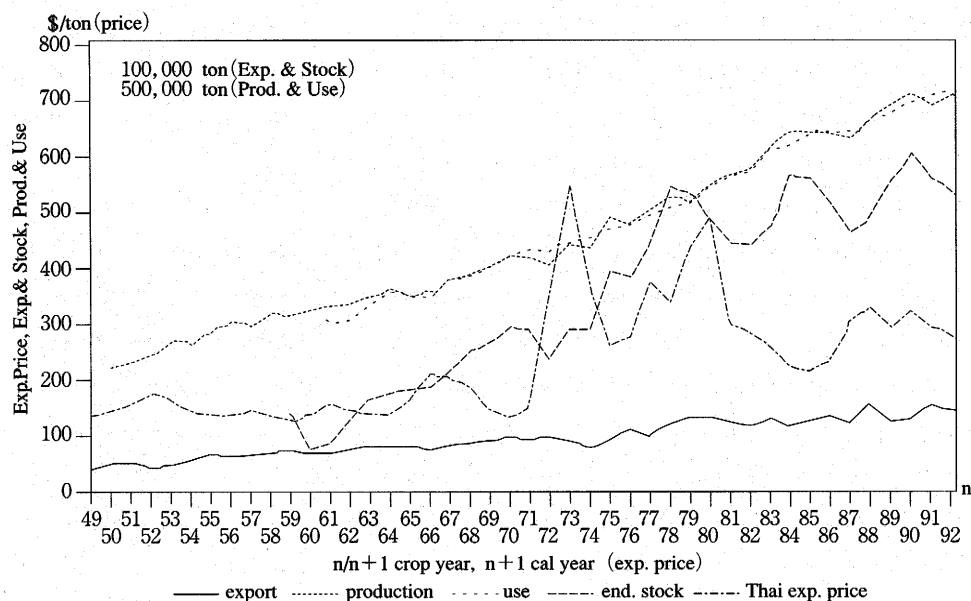
3. The Technology and Policy Interactions in the International Markets of Rice and Other Grains During the Post World War II Period

The changes in the global demand and supply structure of rice and other cereals are generated by the dynamic interactions among policy, economic and technological factors between the north and south countries.

Surplus Accumulation and Price Decline in the World Rice Market vs Concentration of the Poor and the Hungry in Asia

The large amount of rice stock in the world rice market had been rapidly accumulated during the seventies as shown in Fig 6. The world rice stock at the end of each year rose from around 23 million tons in 1972 to 55 million tons in 1978 and has remained at around that level until 1992. The world rice trade price in nominal terms declined very rapidly from crop year 1980/81 to 1985/86 and stagnated after that as indicated by the export price of Thai rice in Fig 6. This rice surplus situation is caused by the green revolution in rice and national rice policies in high income and low income countries.

The Asian countries that produce and consume about 90% of the world total rice supply have promoted green revolution in order to attain their important policy objective of rice



self-sufficiency and stabilization of domestic rice price and supply and have succeeded. Thus the share of Asian rice import in the world rice trade has declined from around 70% in early seventies to about 30% in 1991. Large rice importing Asian countries have disappeared or decreased their rice import drastically and caused a severe condition among the large rice exporting countries such as Thailand, the United States, Burma, Pakistan, China and Vietnam. They have tried hard to expand their market to nontraditional areas such as Africa and Middle East.

We have to remind ourselves though that this rice surplus is not the true surplus since about 60% of the world poor (1133 million) and of the world hungry (512 million) live in Asia²⁾. To the large portion of these people, rice is their staple food, but they can eat only a part of the rice they need because their income is too low.

Dumping of Rice and Other Cereals by High Income Countries and Its Consequences

The world rice surplus situation during the eighties has been worsened by the rice policies of the high income countries like the United States and Japan. There was a remarkable structural change in the U.S. rice policy in 1981 that led to a large surplus accumulation. From 1950 to 1981, the government support prices of rice had been in general below the market price of rice. From 1953 to 75, the government support price for farmers had been the loan rate, and from 1976 to the present it has been the target price. These prices had been in general below the farmers' selling price of rice, that is the market price until 1980 as shown in Fig 7. But after 1981 the target price started to deviate above the market price of rice and this deviation tended to remain. Thus the degree of protection to the farmers has increased drastically from 1981, and has caused the large rice surplus accumulation in the U.S. as shown in Fig 7 and resultant severe rice export dumping and the demands to open Japanese rice market.

This accumulation of large rice surplus is the result of what I call a U.S. rice policy failure. There were two periods of very high international and U.S. rice prices around 1973 and 1980 as shown in the same figure. These high prices are the results of the world food crisis (1973-74) and severe Korean cold damage on rice (1980). These high rice price periods must have misled the U.S. government and the U.S. rice industry, and a new support (target) price was introduced above the previous support price (the loan rate) in 1976 and both support prices had been raised constantly until mid eighties. As described above, the world rice market had already reached severe surplus situation during the late seventies and the situation had worsened until 1986 and the international price of rice represented

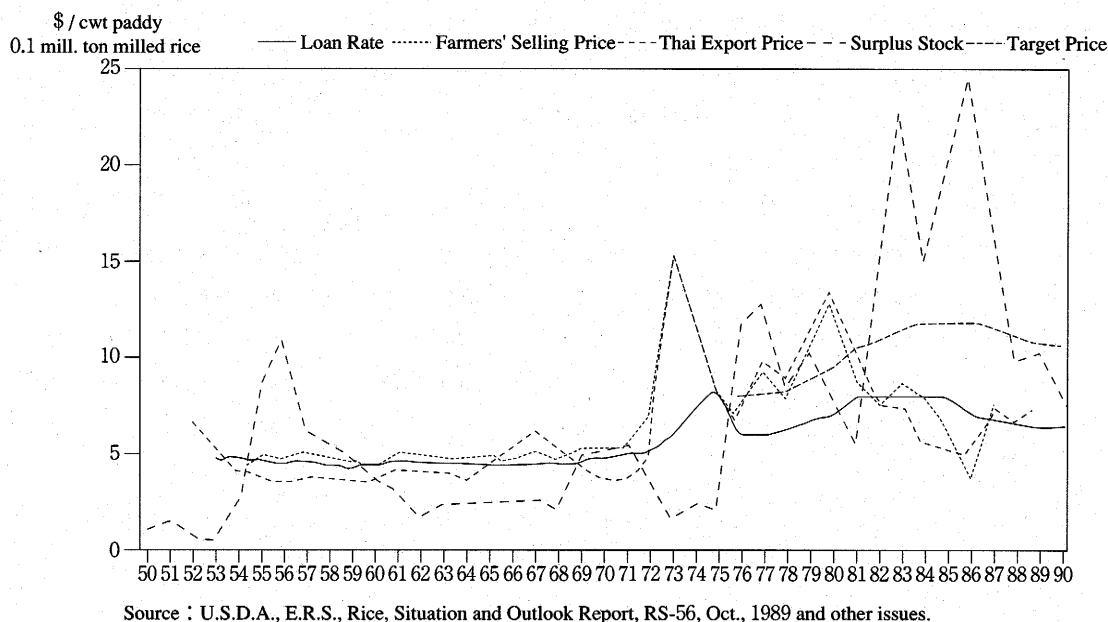


Fig 7 The U.S. Rice Prices and Surplus Rice

by the Thai export price had been declining rapidly as shown in Fig 7. From 1976 the loan rate had been approximately the U.S. policy determined export price, and as the same figure shows the loan rate had become higher than the Thai export price from 1982 to 1986. Consequently the amount of the U.S. rice export had decreased from about 2.3 million tons in 1981 to 2.1 million tons in 1985. Raising the target price had stimulated the U.S. rice production. Since the farmers' and export prices in the U.S. had been raised by the government while the international rice trade price had been declining drastically, the extremely large surplus rice stock of 2.5 million tons had been accumulated in 1986 as shown in Fig 7. Thus I call the U.S. rice price policy during 1980 and 1986 a policy failure. I personally saw many large mountains of surplus paddy piled up on the ground that could not be stored in elevators in the South during my survey trip in 1986.

In order to cope with the accumulated rice surplus and the decline in rice export, the U.S. government introduced new rice export subsidy i. e., the marketing loan in April 1986. The marketing loan covers the most of the difference between loan rate and the world rice trade price so that American rice could be exported at the world trade price after the introduction of the marketing loan subsidy. Thus the U.S. rice export increased since 1986. The wholesale price was reduced to the level of the world trade price by the marketing loan and the domestic demand for rice was increased. The target price was re-

duced since 1987. Consequently, the very large surplus rice was reduced very rapidly as Fig 7 shows. This was made possible mainly by very severe dumping of the U.S. rice by exporting at U.S.\$ 4 per cwt of paddy bought at U.S.\$ 12 per cwt by the federal government from the farmers in April 1986.

In 1986, the world rice surplus situation reached the worst level. Thus the U.S. dumping further depressed the international rice price, and decreased the foreign exchange earnings of the major rice exporting developing countries such as Thailand, Burma, Pakistan, China, etc., and depressed their rice export. The economies of these countries depend heavily on rice export. Severe rice trade conflicts among the major rice exporters which I called the world rice warfare started in 1986.

Japan like other rice importing Asian countries had tried very hard to reach rice self-sufficiency during the post World War II years and attained that policy goal in 1968. But after that she could not control the momentum of increasing the rice production, and accumulated huge surpluses of about 6 to 7 million tons twice in around 1970 and 1980. These surpluses had been disposed as feeds and food aid exports with very heavy government expenditures amounting to the total of about 3 trillion yen. The food aid exports amounted to about 3 million tons each period and was conducted during 5 to 6 years each and might have depressed the world trade price of rice.

During the eighties the government agricultural expenditures of the U.S. and the EC have almost doubled but the expenditure of Japan has decreased by about 15%⁹. This must have caused the accumulation of surplus agricultural commodities in the U.S. and the EC described as the sea of milk, the mountains of cheese, butter, rice and the other cereals and their dumping export competitions between the U.S. and the EC over the globe during the eighties. These dumping exports of the surplus agricultural products must have depressed their prices and the farmers' production incentives in many developing agricultural countries and reduced the already low income of the farmers in these countries. FAO's trade statistics supports this hypothesis showing that the net import of cereals by the developing countries have increased from 21 million tons in 1961 to 91 million tons in 1989/91 and this increase have been provided by the high income countries.

4. Limitations in the Applicability of the Free Trade Postulate to the Asian Rice Market

Strong Simplification Assumptions for the Hypothesis of the Benefit of Free Trade

The hypothesis of the benefit of free trade asserts that free trade maximizes welfare of

all the people on the globe. This hypothesis has been the dominant guiding principle in the trade negotiations under the GATT and the WTO. This hypothesis bases itself on very strong simplifying assumptions that mostly do not hold in the real world economy and especially in the world rice market. Since the basic assumptions do not hold, what the hypothesis implies do not hold either. Some standard text books⁴⁾ on the international trade theory state the severe limitations in the applicability of the modern theory of the gains from trade.

The important assumptions are

- (1) reliable market and perfect competition,
- (2) appropriate redistribution of the benefit of free trade and nonexistence of biased income distribution,
- (3) nonexistence of risk and risk aversion,
- (4) no externalities,
- (5) no infant industry.

Unreliability and Imperfections of the World Rice Trade Market

As shown above the international rice trade market is very thin, unstable and unreliable. In that thin market, japonica rice trade market has been extraordinary thin covering only about 10% (1.5 million tons) of all the rice traded. Large rice crop failures have occurred periodically in Asia as stated above, and these failures were much more than the total amount of rice usually traded in the international rice market. Tropical Asian countries must import the large quantity of rice in the case of large Asia drought. The East Asian countries (such as Japan, and Korea) must import large amount of japonica in the case of cold damages such as the Japanese emergency rice import (2.5 million tons) in 1994 and the Korean emergency import in 1981. In these occasions rice trade prices skyrocketed as shown above, and Asian countries panicked. The international rice trade market is very thin and unreliable. In addition to this, the international rice trade market as described above has been oligopolistic from late 19th century in which 3 to 6 major exporting countries' have dominated about 80% of the world total rice traded.

The Huge Asian Poor and Hungry and Inability of Redistribution of the Net Gains from the Free Trade

According to the agricultural trade agreement of Uruguay Round, Japan has to import the minimum access of about 400 thousand tons of milled rice in 1995 and will increase it to about 800 thousand tons in 2000, and after then may have to import more if she

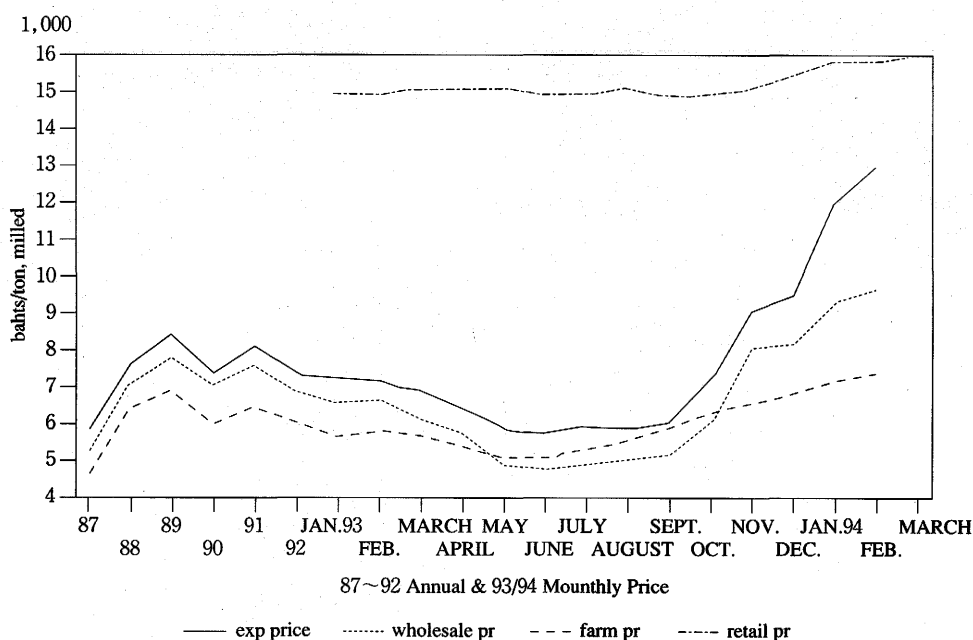


Fig 8 Sharp Rise of Thai Rice (long grain, 5% broken) Prices Caused by Japan's Rice Import

accepts tariffication. These quantities are very large in comparison with the total rice traded in the very thin world rice trade market. Korea also accepted minimum access import of rice in the agreement. The effects of these imports to the world rice market can be estimated if we look at the effects of Japan's large emergency rice import in 1994 and Korea's in 1981 following the very severe cold damages in 1993 in Japan and in 1980 in Korea.

Japan started her emergency rice import of 2.5 million tons in October 1994 and suddenly became the largest rice importer in the thin international rice trade market. Then the export and wholesale prices of Thai rice soared as Fig 8 shows. Both prices doubled within four months from October 1993. Japan tried to import japonica rice but its supply was not enough. So she had to import Thai indica rice. These sharp increase of rice prices of Thailand which has been the largest rice exporter during last 14 years reflects the thinness of the international rice market. The farm gate and retail prices of Thai rice had increased 33% and 7.1% respectively from August 1993 to February 1994. These price rises were much less than the rises of export and wholesale prices, but these were the prices which the rural and urban poor had to pay, and they suffered from these price rises who still remained in Thailand.

The retail prices of the low and medium quality rice in Indonesia started to increase sharply also from October 1993 as shown in Fig 9. The low and medium quality rice are the staple food of the poor in Indonesia. There are huge number of the poor in the country

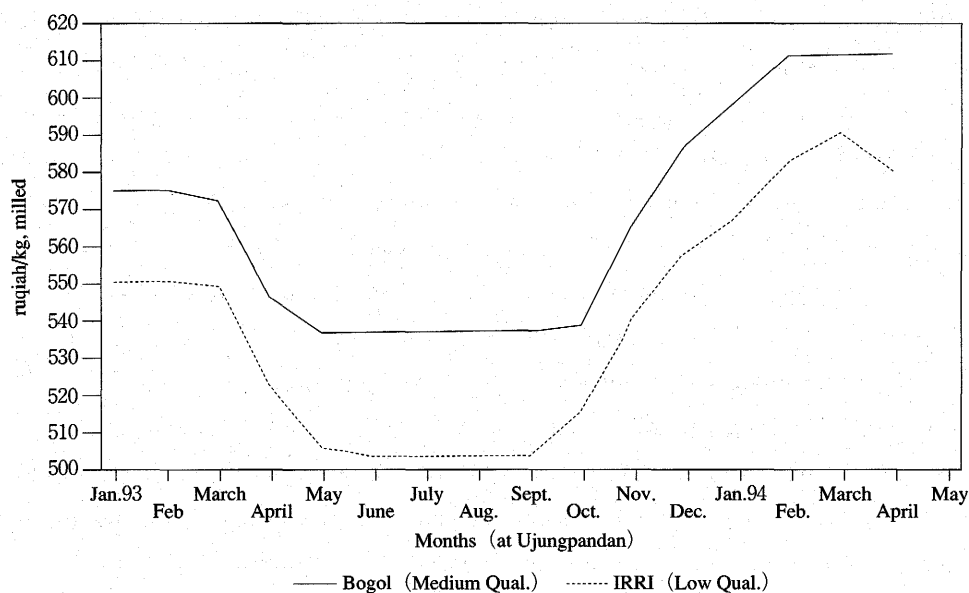


Fig 9 Sharp Rise of Retail Prices of Low and Medium Quality Rice in Indonesia

as reflected by the fact that the average Engel's coefficient to all the Indonesian consumers was about 70% in 1991. The sharp rise of the retail rice prices caused by the Japan's emergency import must have created the great hardship to the Indonesian poor.

The huge Korean rice imports of 0.9 and 2.6 million tons in 1980 and 1981 following the severe cold damages in 1980 increased the international rice price by 45% from 1979 to 1981.

I estimated the effects of the Japan's emergency import and minimum access imports to the international rice trade price by the autoregression method from 1994 to 2000. The international price is estimated to double on the average compared with 1993 price level during the estimation period⁵⁾.

Consequently large amount of rice import by Japan and Korea through minimum access and tariffication which are considered to be important steps toward trade liberalization will raise trade and domestic rice prices in Asia which will cause severe hardship to the huge Asian poor. Free trade is assumed to make all the people better off. But rice free trade makes the huge Asian poor severely worse off and the U.S., Australia and a few Asian rice exporters better off. There is, also, no practical system to redistribute the most of the benefit of free trade to the Asian poor to make every body better off.

Risk Related to the Domestic Rice Price and Rice Supply is the Very Important Aspect to the Asians

As described above, stabilization of domestic rice price and rice supply is very important for Asian people and Asian governments. This point should be emphasized because of the fact that about 7 billion poor and hungry people are concentrated in Asia most of whom eat rice as their staple food and thus rice becomes the political goods in Asia. In order to attain this stabilization objective, most Asian rice importers had taken rice self-sufficiency policy. Most Asian rice exporters too had made the domestic stabilization as one of the most important policy objectives.

The hypothesis of the benefit of free trade does not incorporate the stabilization or risk aspect as a factor in it. But if rice trade is liberalized, the Asian people must face the inherently thin, unstable and unreliable international rice trade market, and this instability must reduce the welfare of the Asian people a lot. After liberalization Japan and Korea will be large rice importers. The price elasticities of import demand of these high income countries are very low as indicated by the Japan's recent emergency import behavior⁶⁾. This will increase the instability of the international rice trade market. The implication of the benefit of free trade must be revised taking due account of this risk aspect.

Externalities and Infant Industry

Rice is the most important crop in the agricultural of the most of the monsoon Asian countries. Thus existence of rice sector in Asian countries have great external benefits to the Asian people such as the value of its existence itself, ecological sustainability of rice production, water control, soil and land conservation, rice price and supply stabilization and rural scenery. These externalities can be assured only by the self-sufficiency policy.

Rice sector can be considered to be an infant industry to be protected in order to develop itself to more efficient industry.

Since the hypothesis of the benefit of free trade assumes away these externalities and the infant industry aspects, its implication must be revised from these view points too.

5. Conclusion

The international rice trade market is much thinner, more unstable and unreliable comparing with the markets of other major cereals. Thus most Asian countries which produce and consume about 90% of total world rice supply have pursued the policy to attain rice self-sufficiency and to maintain it after its attainment in order to assure stability of domes-

tic rice price and supply. These policies have reinforced the thinness and instability of the rice trade market.

The hypothesis of the benefit of free trade implies that free trade potentially maximizes the welfare of all the people on the globe. This hypothesis has been used as the guiding rule for rice and other agriculturant products trade negotiations under GATT. The U.S., the second largest rice exporter has been a proponent of the hypothesis, but her rice policy has been producing large surplus rice under high protection and dumping about half of it by heavy export subsidy, which has depressed international rice trade price. This U.S. policy decreased trade revenue of Asian rice exporting countries and profit of larger rice farmers in Asian countries.

The implication of the hypothesis of the benefit of free trade holds only when such very strong simplification assumptions as perfect competition, no biased income distribution and no risk aversion are correct. But these assumptions do not hold in the real world economy, and especially so in the oligopolistic world rice trade market. When rice trade is liberalized, Japan and Korea will become large rice importers, and these imports will raise the world and domestic rice prices which cause the very severe hardship to the huge rice eating poor and hungry in Asia. Large Japanese and Korean rice imports from the thin international trade market will worsen instability of the market since very low price elasticity of import demands by these high income countries. The huge risk averse poor and hungry who eat rice as their staple food will further be hurt by the increased instability. Japan, Korea, the U.S. and other countries better pursue rice self-sufficiency policy in order to maintain stable and intermediate rice price in the world and Asian developing countries. In this respect, a new guiding rule based on the principle of national self sufficiency is better be established for international rice trade negotiations.

Notes:

- 1) Ammar Siamwalla and Stephen Haykin, *The World Rice Market: Structure, Conduct, and Performance*, Washington, D.C.: International Food Policy Research Institute, June 1983.
- 2) Estimates of the World Bank and and the UN World Food Council.
- 3) From OECD data.
- 4) For example, A. Chogoliades, *International Trade Theory*, MacGraw Hill Pub. Co., 1981.
- 5) Hiroshi Tsujii, "International Effects of Japan's Liberalization of Rice Market", (in Japanese), *Kokusai Mondai (International Affairs)*, No.416, November 1994, pp.50-52. The estimates were also presented in an NHK, ETV program on the effects of Japan's emergency rice import in February 1995.
- 6) The author personally obtained the information indicating Japan had tried to import certain quantities of rice at almost any price from California and Thailand during late 1993 and early 1994.